

CLAIMS

1 1. (currently amended) A method for generating a linearized amplified output signal from
2 an input signal having amplitude information, the method comprising:
3 converting the input signal into two pre-distorted signals without having the amplitude
4 information converted into phase modulation;
5 separately amplifying the two pre-distorted signals; and
6 combining the two amplified, pre-distorted signals to generate the linearized amplified output
7 signal.

1 2. (original) The invention of claim 1, wherein:
2 the input signal is an RF signal; and
3 the linearized amplified output signal is an RF signal having amplitude information.

1 3. (currently amended) The invention of claim 1, wherein converting the input signal
2 comprises:
3 pre-distorting the input signal to generate a pre-distorted input signal having a pre-distorted
4 amplitude; and
5 converting the pre-distorted input signal into the two pre-distorted signals without having the pre-
6 distorted amplitude information converted into phase modulation.

1 4. (original) The invention of claim 3, wherein pre-distorting the input signal comprises
2 pre-distorting both amplitude and phase of the input signal.

1 5. (currently amended) The invention of claim 1, wherein converting the input signal
2 comprises:
3 generating a phase pre-distortion term from the input signal;
4 generating an amplitude pre-distortion term from the input signal;
5 detecting phase of the input signal;
6 combining the phase pre-distortion term, the amplitude pre-distortion term, and the phase in a
7 first manner and modulating at a carrier frequency to generate a first pre-distorted signal without having
8 the amplitude information converted into phase modulation; and
9 combining the phase pre-distortion term, the amplitude pre-distortion term, and the phase in a
10 second manner and modulating at the carrier frequency to generate a second pre-distorted signal without
11 having the amplitude information converted into phase modulation.

1 6. (original) The invention of claim 5, wherein generating the phase and amplitude pre-
2 distortion terms comprise:
3 detecting amplitude of the input signal;
4 retrieving the phase pre-distortion term from a first look-up table based on the detected
5 amplitude; and
6 retrieving the amplitude pre-distortion term from a second look-up table based on the detected
7 amplitude.

1 7. (original) The invention of claim 5, wherein:
2 in the first manner, the amplitude pre-distortion term is subtracted from the sum of the phase pre-
3 distortion term and the phase; and
4 in the second manner, the amplitude pre-distortion term is added to the sum of the phase pre-
5 distortion term and the phase.

1 8. (original) The invention of claim 1, wherein combining the two amplified, pre-distorted
2 signals is implemented using a transformer.

1 9. (original) The invention of claim 1, wherein combining the two amplified, pre-distorted
2 signals is implemented using a transmission line tee with transmission stubs for impedance matching.

1 10. (currently amended) The invention of claim 9, wherein the transmission stubs comprise
2 shunt reactances placed an electrical equivalent of one-quarter wavelength away from the transmission
3 line tee.

1 11. (currently amended) An amplifier circuit adapted to generate a linearized amplified
2 output signal from an input signal having amplitude information, the amplifier circuit comprising:
3 means for converting the input signal into two pre-distorted signals without having the amplitude
4 information converted into phase modulation;
5 means for separately amplifying the two pre-distorted signals; and
6 means for combining the two amplified, pre-distorted signals to generate the linearized amplified
7 output signal.

1 12. (currently amended) An amplifier circuit adapted to generate a linearized amplified
2 output signal from an input signal having amplitude information, the amplifier circuit comprising:
3 circuitry adapted to convert the input signal into two pre-distorted signals without having the amplitude
4 information converted into phase modulation;
5 two amplifiers adapted to separately amplify the two pre-distorted signals; and
6 a combiner adapted to combine the two amplified, pre-distorted signals to generate the linearized
7 amplified output signal.

1 13. (original) The invention of claim 12, wherein:
2 the input signal is an RF signal; and
3 the linearized amplified output signal is an RF signal having amplitude information.

1 14. (currently amended) The invention of claim 12, wherein the circuitry adapted to convert
2 the input signal comprises:
3 a pre-distorter adapted to pre-distort the input signal to generate a pre-distorted input signal
4 having a pre-distorted amplitude; and
5 a LINC modulator adapted to convert the pre-distorted input signal into the two pre-distorted
6 signals without having the pre-distorted amplitude information converted into phase modulation.

1 15. (original) The invention of claim 14, wherein the pre-distorter is adapted to pre-distort
2 both amplitude and phase of the input signal.

1 16. (currently amended) The invention of claim 12, wherein the circuitry adapted to convert
2 the input signal comprises:
3 circuitry adapted to generate a phase pre-distortion term from the input signal;
4 circuitry adapted to generate an amplitude pre-distortion term from the input signal;
5 a phase detector adapted to detect phase of the input signal;
6 circuitry adapted to combine the phase pre-distortion term, the amplitude pre-distortion term, and
7 the phase in a first manner and modulating at a carrier frequency to generate a first pre-distorted signal
8 without having the amplitude information converted into phase modulation; and

9 circuitry adapted to combine the phase pre-distortion term, the amplitude pre-distortion term, and
10 the phase in a second manner and modulating at the carrier frequency to generate a second pre-distorted
11 signal without having the amplitude information converted into phase modulation.

1 17. (original) The invention of claim 16, wherein the circuitry adapted to generate the phase
2 and amplitude pre-distortion terms comprises:

3 an envelope detector adapted to detect amplitude of the input signal;
4 a first look-up table adapted to provide the phase pre-distortion term based on the detected
5 amplitude; and
6 a second look-up table adapted to provide the amplitude pre-distortion term based on the detected
7 amplitude.

1 18. (original) The invention of claim 16, wherein:

2 the circuitry adapted to combine the phase pre-distortion term, the amplitude pre-distortion term,
3 and the phase in the first manner is adapted to generate a signal corresponding to the amplitude pre-
4 distortion term subtracted from the sum of the phase pre-distortion term and the phase ; and

5 the circuitry adapted to combine the phase pre-distortion term, the amplitude pre-distortion term,
6 and the phase in the second manner is adapted to generate a signal corresponding to the amplitude pre-
7 distortion term added to the sum of the phase pre-distortion term and the phase.

1 19. (currently amended) The invention of claim 18, wherein the circuitry adapted to
2 generate the first and second pre-distorted signals without amplitude information comprises:

3 a subtraction node adapted to subtract the amplitude pre-distortion term from the phase pre-
4 distortion term;
5 a first addition node adapted to add the amplitude pre-distortion term to the phase pre-distortion
6 term;
7 a second addition node adapted to add the phase to the output from the subtraction node;
8 a first modulator adapted to modulate the output from the second addition node at the carrier
9 frequency to generate the first pre-distorted signal without amplitude information;
10 a third addition node adapted to add the phase to the output from the first addition node; and
11 a second modulator adapted to modulate the output from the third addition node at the carrier
12 frequency to generate the second pre-distorted signal without amplitude information.

1 20. (original) The invention of claim 12, wherein the combiner comprises a transformer.

1 21. (original) The invention of claim 12, wherein combiner comprises a transmission line
2 tee with transmission stubs for impedance matching.

1 22. (currently amended) The invention of claim 21, wherein the transmission stubs comprise
2 shunt reactances placed an electrical equivalent of one-quarter wavelength away from the transmission
3 line tee.